SEQUENCE LISTING

<110> Sera, Takashi

<120> Nuclear-Envelope and Nuclear-Lamina Binding Chimeras for Modulating Gene Expression

<130> 109845-163

<160> 21

<170> PatentIn version 3.3

<210> 1
<211> 25
<212> PRT
<213> Artificial

<220>
<223> Zinc finger domain

<220>
<221> MISC_FEATURE
<222> (2)..(5)
<223> Amino acids 2-5 are Xaa wherein Xaa = any amino acid, and up to two amino acids can be missing.

<220>
<221> MISC_FEATURE
<222> (7)..(18)
<223> Xaa can be any amino acid

<220>
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<222> (20)..(24)
<223> Amino acids 20-24 are Xaa wherein Xaa = any amino acid, and up to two amino acids can be missing.

<400> 1

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Cys Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1               5                  10                  15

Xaa Xaa His Xaa Xaa Xaa Xaa Xaa His
            20                  25
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<220>
<223> Second zinc finger domain

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<222> (1)..(3)
<223> Xaa can be any amino acid

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<222> (5)..(8)
<223> Amino acids 5-8 are Xaa wherein Xaa = any amino acid, and up to two amino acids can be missing

<220>
<221> MISC_FEATURE
<222> (10)..(14)
<223> Xaa can be any amino acid

<220>
<221> MISC_FEATURE
<222> (15)..(15)
<223> Amino acid 15 is Z(-1) wherein Z(-1) = Arg, Lys, Gln, Asn, Thr, Met, Leu, lle, Glu or Asp.

<220>
<221> MISC_FEATURE
<222> (16)..(16)
<223> Xaa can be any amino acid

<220>
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<222> (17)..(17)
<223> Amino acid 17 is Z2 wherein Z2 = Ser, Arg, Asn, Gln, Thr, Val, Ala, Asp or Glu.

<220>
<221> MISC_FEATURE
<222> (18)..(18)
<223> Amino acid 18 is Z3 wherein Z3 = His, Lys, Asn, Gln, Ser, Ala, Val, Thr, Asp, or Glu

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<221> MISC_FEATURE
<222> (19)..(20)
<223> Xaa can be any amino acid

<220>
<221> MISC_FEATURE
<222> (21)..(21)
<223> Amino acid 21 is Z6 wherein Z6 = Arg, Lys, Gln, Asn, Thr, Tyr, Leu, lle, Met, Glu or Asp.

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<221> MISC_FEATURE
<222> (23)..(27)
<223> Amino acids 23-27 are Xaa wherein Xaa = any amino acid, adn up to two amino acids can be missing.

<220>
<221> MISC_FEATURE
<222> (29)..(32)
<223> Xaa can be any amino acid

<400> 2

Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa Xaa Xaa Xaa His Xaa Xaa Xaa Xaa Xaa His Xaa Xaa Xaa Xaa
20 25 30

<210> 3
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<213> Artificial

<220>

<223> Zinc finger domain

<220>
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<222> (13)..(13)
<223> Amino acid 13 is Z(-1) wherein Z(-1) = Arg, Lys, Gln, Asn, Thr, Met, Leu, Ile, Glu or Asp.

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<222> (15)..(15)
<223> Amino acid 15 is Z2 wherein Z2 = Ser, Arg, Asn, Gln, Thr, Val, Ala, Asp or Glu.

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<221> MISC_FEATURE
<222> (16)..(16)
<223> Amino acid 16 is Z3 wherein Z3 = His, Lys, Asn, Gln, Ser, Ala, Val, Thr, Asp or Glu.

<220>
<221> MISC_FEATURE
<222> (19)..(19)
<223> Amino acid 19 is Z6 wherein Z6 = Arg, Lys, Gln, Asn, Thr, Tyr, Leu, Ile, Met, Glu or Asp.

<400> 3

Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Xaa Ser Xaa Xaa
1 5 10 15

Leu Gln Xaa His Gln Arg Thr His Thr Gly Glu Lys
20 25

<210> 4
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<223> Synthetic flexible linker peptide for linking together multi-finger zinc finger domains

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Gly Gly Gly Gly Ser
1 5

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<212> PRT
<213> Human immunodeficiency virus

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<222> (1)..(11)
<223> HIV Tat protein domain

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Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg
1 5 10

<210> 6
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<212> DNA
<213> Human immunodeficiency virus

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<221> misc_feature
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<223> HIV DNA Binding Domain

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gcagaagcc 9

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<212> DNA
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<223> DNA target sequence

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gtgtgggtga gtgagtgtg 19

<210> 8
<211> 19
<212> DNA
<213> Artificial

<220>
<223> DNA target sequence

<400> 8
ggggctgggg gcggtgtct 19

<210> 9
<211> 7
<212> PRT
<213> Simian virus 40

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<222> (1)..(7)
<223> Peptide from SV40 large T antigen

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Pro Lys Lys Lys Arg Lys Val
1 5

<210> 10
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<212> PRT
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<223> Peptide, residues 43-58 of the Antennapeida homeodomain protein

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<221> MISC_FEATURE

<222> (1)..(16)
<223> Peptide, residues 43-58 of the Antennapeida homeodomain protein

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Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg Met Lys Trp Lys Lys
1 5 10 15

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<211> 34
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<213> Herpes Simplex Virus

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<221> MISC_FEATURE
<222> (1)..(34)
<223> Residues 267-300 of the HSV VP22 protein

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Asp Ala Ala Thr Ala Thr Arg Gly Arg Ser Ala Ala Ser Arg Pro Thr
1 5 10 15

Glu Arg Pro Arg Ala Pro Ala Arg Ser Ala Ser Arg Pro Arg Arg Pro
20 25 30

Val Glu

<210> 12
<211> 11
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<213> Artificial

<220>
<223> Synthetic peptide modeled after the protein transduction domain of the human immunodeficiency virus TAT protein having cellular uptake activity

<400> 12

Tyr Ala Arg Ala Ala Ala Arg Gln Ala Arg Ala
1 5 10

<210> 13
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Synthetic peptide modeled after the protein transduction domain of the human immunodeficiency virus TAT protein having cellular uptake activity, referred to as "R9"

<400> 13

Arg Arg Arg Arg Arg Arg Arg Arg Arg
1 5

<210> 14
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<212> PRT
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<221> MISC_FEATURE
<222> (1)..(16)
<223> All amino acids are in the D-form

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Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg Met Lys Trp Lys Lys
1 5 10 15

<210> 15
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<212> PRT
<213> Artificial

<220>
<223> Peptide Syn B1 from Anntennapedia homeodomain protein

<400> 15

Arg Gly Gly Arg Leu Ser Tyr Ser Arg Arg Arg Phe Ser Thr Ser Thr
1 5 10 15

<210> 16
<211> 10
<212> PRT
<213> Artificial

<220>
<223> L-SynB3 peptide from Antennapedia homeodomain protein

<400> 16

Arg Arg Leu Ser Tyr Ser Arg Arg Arg Phe
1 5 10

<210> 17
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<212> PRT
<213> Artificial

<220>
<223> D-SynB3 peptide from Antennapedia homeodomain pro

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<222> (1)..(10)
<223> All amino acids are in the D-form

<400> 17

Arg Arg Leu Ser Tyr Ser Arg Arg Arg Phe
1 5 10

<210> 18
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<212> PRT
<213> Artificial

<220>
<223> Flag Epitope Peptide

<400> 18

Asp Tyr Lys Asp Asp Asp Asp Lys
1 5

<210> 19
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<220>
<223> Artificial peptide linker

<400> 19

Gly Gly Gly Gly Ser
1 5

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<212> PRT
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<220>
<223> Artificial peptide linker

<400> 20

Gly Gly Gly Ser
1

<210> 21
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<212> PRT
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<220>
<223> Artificial peptide linker

<400> 21

Gly Gly Ser
1